

# Kanishka Gunawardana

Department of Computer Engineering, University of Peradeniya, Sri Lanka

☎ +94 76-2152049 | ✉ [kanishkagunawarathana@gmail.com](mailto:kanishkagunawarathana@gmail.com) | [🌐 linkedin.com/in/kanishka](https://www.linkedin.com/in/kanishka) | [🐙 github.com/KATTA-00](https://github.com/KATTA-00)

## Profile

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I am an enthusiastic 3rd year Computer Engineering undergraduate with a fervent interest in Computer Architecture, Robotics, Computer Vision, Deep Learning, and Cyber-physical Systems. Driven by a passion for leveraging cutting-edge technology to tackle complex challenges and create impactful solutions.

## Education

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<b>University Of Peradeniya</b> <i>Undergraduate in B.Sc. Engineering(Hons.) Computer Engineering</i> Field Rank: <b>1/90</b>	Nov. 2021 – Present <i>Current GPA: 4.0/4.0</i>
<b>Dharmaraja College Kandy</b> <i>G.C.E. Advanced Level Examination</i> National Rank - <b>149/19508</b> , District Rank - <b>11/1189</b>	Nov. 2006 – Aug. 2019 <i>Z-score: 2.5661</i>

## Experience

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<b>Casual Instructor</b> <i>Department of Computer Engineering, University of Peradeniya</i> GP106: Computing, CO222: Programming Methodology - Supervised 2hr long weekly lab sessions based on Python and C programming languages. Assisted in quiz creation and lab material preparation and designing course projects.	Jun. 2022 – Present
<b>Volunteering</b> <i>Project Nenathambara - University of Peradeniya</i> <i>Led University of Peradeniya's outreach program for Project Nenathambara, organizing workshops on Arduino and robotics for underprivileged students in Sri Lankan schools.</i>	Sep. 2023 – Present

## Projects

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<b>Impact Tracking System For Athletes(IMPAX)</b>   <i>Group</i>   🌐🌐 <ul style="list-style-type: none"><li>Developed a real-time impact monitoring system for sports using wearable devices and dashboards with integrated backend and secure database, enabling prompt concussion identification, post-session data transmission, and comprehensive analytics for player safety and informed decision-making.</li><li>Technology: <b>Arduino, Raspberry PI, MQTT, Python, Electron.js, Express.js, MongoDB</b></li></ul>	Nov. 2023 – Mar. 2024
<b>A Field-Based Approach for Quantifying Plant Leaf Color</b>   <i>Group</i>   🌐🌐 <ul style="list-style-type: none"><li>Developed a mobile application with a backend that utilizes image processing to objectively quantify plant leaf colour by analyzing information extracted from captured leaf images.</li><li>Techniques: Image Segmentation, Colour Extraction, K-mean Clustering</li><li>Technology: <b>Python, OpenCV, Pytorch, FastAPI, Flutter</b></li></ul>	Aug. 2023 – Nov. 2023
<b>8-bit Single-cycle Processor</b>   <i>Group</i>   🌐 <ul style="list-style-type: none"><li>Designed and implemented an 8-bit single-cycle processor architecture in Verilog HDL, supporting arithmetic, logic, data transfer, and control flow instructions.</li><li>Built a comprehensive testbench for verification, ensuring processor functionality and timing constraints.</li><li>Technology: <b>Verilog-HDL</b></li></ul>	Mar. 2023 – Jun 2023
<b>Obstacle Robot Swarm for Swarm Robotic Project</b>   <i>Group</i>   🌐🌐 <ul style="list-style-type: none"><li>Leading the development and firmware update of obstacle robots with collision avoidance algorithms for the swarm robotics platform.</li><li>Integrating obstacle robots with the existing platform, enabling studies of dynamic obstacle scenarios.</li><li>Technology: <b>Arduino, Python, Java, MQTT, OpenCV</b></li></ul>	Feb. 2024 – Present

**Identifying export grade Mango fruits** | *Group* | 🔄 🌐 Mar. 2024 – Present

- Creating a computer vision system for classifying defective and healthy mangoes based on image processing techniques
- Techniques: Image Segmentation, Colour Extraction
- Technology: **Python, OpenCV**

**Department Space Management System** | *Group* | 🔄 🌐 Mar. 2023 – Jun. 2023

- Developed a web application using Spring Boot and React for efficient reservation management of shared spaces in a university department, including waiting list functionality and user hierarchy for access control.
- Technology: **Java, Spring Boot, React.js, MySQL**

**Database for Cricket Statistics** | *Group* | 🔄 🌐 Mar. 2023 – Jun. 2023

- Designed and developed CricLive, a comprehensive database for cricket statistics, enabling users to store, manage, and analyze data on players, teams, and matches.
- Technology: **Node.js, Express.js, React.js, MySQL, WebSocket**

## Achievements

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**SLIoT Challenge 2023** | *Sri Lankan Biggest IOT Competition* | *Group* Mar. 2024

- 2nd Runners up(Out of 100+ Teams) | *Organized by University of Moratuwa in collaboration with SLT-MOBITEL and IESL*

**MoraXtream 8.0** | *12 hour algorithmic programming competition* | *Group* Nov. 2023

- National Rank - 4(Out of 400+ Teams) | *Organized by the IEEE Student Branch of the University of Moratuwa*

**IEEE Xtreme 17.0** | *24 hour algorithmic programming competition* | *Group* Nov. 2023

- Global Rank - 374(Out of 16500+ participants), National Rank - 24(Out of 330 Teams)

**ACES Coders v10.0** | *12 hour algorithmic programming competition* | *Group* Oct. 2023

- National Rank - 12(Out of 350+ participants) | *Organized by the Association of Computer Engineering Students of the University of Peradeniya*

**ACES PreCoders v10.0** | *6 hour algorithmic programming competition* | *Group* Sep. 2023

- University Rank - 2(Out of 50+ Teams)

**ACES Hackathon 2023** | *An inter-university hackathon organized by the ACES* | *Group* Sep. 2023

- LearnLink - online platform serve as market place to sell books

## Extra-Curricular Activities

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Head of Web Development - Robotics Society - University of Peradeniya Sep. 2023 - Present

Executive Committee Member - Robotics Society - University of Peradeniya Dec. 2022 - Sep. 2023

Member of Rotaract Club of University of Peradeniya Dec. 2021 - Present

## Technical Skills

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**Languages:** Python, C/C++, Java, SQL, JavaScript, Verilog HDL, ARM assembly

**Frameworks:** Arduino, Express.js, Spring Boot, FastAPI

**Libraries:** OpenCV, NumPy, Matplotlib, Pandas, Pytorch, TensorFlow

**Developer Tools:** Git, Docker, Quartus, GTKWave, AWS

## References

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**Prof. Roshan G. Ragel** | *roshanr@eng.pdn.ac.lk*

Head of Department, Department of Computer Engineering, Faculty of Engineering, University, Peradeniya, Sri Lanka.

**Dr. Isuru Nawinne** | *isurunawinne@eng.pdn.ac.lk*

Senior Lecturer, Department of Computer Engineering, Faculty of Engineering, University of Peradeniya, Sri Lanka.